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AUTHOR Broen, Patricia
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ABSTRACT

This paper discusses findings from a study of the speech patterns of 10 mothers interacting with their own younger child, their own older child, and with an adult. Results are discussed in terms of the temporal-acoustic pattern and content of the mothers' speech. Two claims are made about the kinds of speech a child hears: (1) The flow of speech is disrupted by broken sentences, extraneous words and phrases, and inappropriate segmentation; and (2) The child hears a random sample of sentences not contrived to teach the child about grammar. Each of the 10 mothers used in this study had one child 18 to 26 months of age and one child 4 to 6 years of age. The mothers talked with each of their children in a play situation and told a story to each of their children from a set of pictures. The toys in the room and the story pictures were held constant across mothers and across children. Each mother also talked with an adult. The speech used by mothers when talking with their younger child was compared with the speech used by mothers when talking with their older child. The speech used with the adult was also compared to the samples of speech to the children. With very young children, mothers used a slower speech rate, and a restricted vocabulary and set of sentences. Sentence boundaries were well marked by pauses, and there was little false information in the form of broken sentences, disfluencies, or inappropriate pauses. As the age of the speaking partner increased, the rate of speech and the diversity of vocabulary increased. (CK)

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A Discussion of the Linguistic Environment of the Young, Language Learning Child

PATRICIA BROEN

UNIVERSITY OF MINNESOTA

This paper will discuss findings from a study of the speech patterns of ten mothers interacting with their own younger child, their own older child and with an adult. The results will be discussed in terms of the temporal-acoustic pattern of the mothers' speech and the content of the mothers' speech.

INTRODUCTION

During the last decade a great deal of attention has been focused on the pattern of speech development observed in the young child. This has, in part, come from a new concept of what it is that the child has to learn. Discussions of the acquisition of language by the child have frequently been accompanied by statements discounting the role of the mother in the acquisition process. Two kinds of claims have been made about the speech the child hears. One claim is that the flow of speech is disrupted by broken sentences, extraneous words and phrases, and inappropriate segmentation (Chomsky, 1967). The second claim is that the child hears a random sample of sentences not contrived to teach the child about grammar (McNeill, 1967).

Neither of these claims seems to be based on observations of the speech addressed by adults to children. These claims appear to be based on the kind of speech used by adults in adult-adult conversation. In talking with children adults may use an altogether different pattern of speech. The speech addressed directly to the young child may be the important speech sample for language learning.

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This study attempts to describe both the temporal pattern and the sentence pattern of speech mothers address to their own young children.

Each of the ten mothers used in this study had one child 18 to 26 months of age and one child 4 to 6 years of age. These ages were chosen to provide one child at a rapid language learning age and one child who had already acquired most of the basic structure of speech.

The mothers talked with each of their children in a play situation and told a story to each of their children from a set of pictures. The sessions took place within a laboratory setting. The toys in the room and the story pictures were held constant across mothers and across children. Each mother also talked with an adult.

The speech used by mothers when talking with their younger child was compared with the speech used by mothers in talking with their older child. The speech used with the adult was also compared to the samples of speech to the children. We were interested in variations in both the temporal patterning of the mothers' speech and the content of the mothers' speech. I hypothesized that mothers would speak slower and be more fluent with the younger child. In addition, I hypothesized that sentence boundaries would be well marked by pauses as the mother talked with the younger child. Both word rate and disfluency rate were expected to increase with an increase in the age of the speaking partner.

Content changes were also anticipated. I hypothesized that mothers would use a lower type token ratio and a smaller range of sentence types in their speech to the younger child and that the diversity of their vocabulary and sentence types would increase with the increasing age of the speaking partner.

Temporal Patterns. At this point I would like to play a sample of speech obtained in this study. The sample consists of three brief segments from each of two mothers. In the first segment the mother is talking with an

adult, in the second segment the mother is talking with an older child and in the third segment the mother is talking with a younger child.

The last page of the handout contains a protocol of the speech you are about to hear. If you have a pencil try to segment the speech into sentences as you hear it.

PLAY TAPE HERE

Probably the most striking change that occurs in the mothers speech is a rate change. The mother uses about twice as many words per minute in talking with an adult as she does in talking with a young child. Her rate increases with the older child but not to the level found in her speech to the adult. These data are depicted graphically in figure 1 of the handout.

In telling a story from a set of pictures the mother talked faster to both of the children but the differential between the younger and the older child was maintained. Both task differences and listener differences were statistically significant.

The speech to the young child and to the older child can be easily segmented into sentences while the speech to the adult is difficult to segment. This is in part a function of the reduced rate of speech used by the mother in talking with the children. It also appears to relate to the distribution of pauses in the mothers' speech.

A representative sample of the speech used by the mothers in the three conversational situations was subjected to a pause analysis. Within the sample all pauses in excess of 260 msec. were identified and located within the sentence structure of the mothers' speech. Figure 2 in the handout graphically depicts these results. In speech to the young child, mothers paused almost exclusively at the end of sentences. The converse of this was also true. Almost all sentences addressed to the younger child were followed by pauses.

In the speech to the adult about 50% of the pauses occurred at the end of sentences or phrases and about 50% of the pauses occurred internal to phrases. This is consonant with other studies of adult-adult speech. The speech to the older child was much like the speech to the younger child in this respect. Pauses tended to follow sentences in the speech to the older child, although there was some trend in the direction of the adult-adult sample. Pauses have potential as sentence markers because they break the flow of speech physically.

Sentence boundaries can be identified by the arrangement of words and the intonation pattern within the sentence. This requires, at least some knowledge of word meaning and of the importance of particular intonation patterns. In contrast, the pause is a break in the physical, acoustical flow of speech and does not require previous knowledge of either word meaning or intonation patterns.

If the child's task is, as Bever (1970) suggests, to understand and create sentences, he must first identify the units which are sentences. The pause seems to provide the child with that information at least in this sample.

The third descriptive measure used was a measure of disfluency. Disfluency was defined here as a linguistically irrelevant repetition or interjection of a sound, word or phrase. Broken sentences and retraced sentences were also counted as disfluencies.

In the speech to the younger child, disfluencies occurred at an average rate of less than 1 per 100 words. In the story telling situation the disfluency rate was less than one per 100 words in the speech to both of the children. In conversation with the older child, the mothers' disfluency rate increased to about 1½ per 100 words. In conversation with an adult, the mothers' disfluency rate was almost five disfluencies per 100 words. This rate, about 5 disfluencies per 100 words, is similar to that found in other studies of

conversational speech that use this same definition of disfluency (Broen, In press). The differences between the samples in the conversational situation were all significant.

At this point it should be remembered that all of the samples of the speech of a mother were obtained within a 25 minute period. The modification observed in the mothers' speech occurred within that period.

Speech Content. The content of the mothers' speech also appeared to vary with the age of the speaking partner.

A type token ratio analysis of the second and third 100 words used by mothers in each segment revealed a difference related to the age of the speaking partner. Mothers used a higher type token ratio or a greater range of vocabulary with the older child than with the younger child and an even more diverse vocabulary with the adult. All of these differences were significant. The difference between the story telling and the conversation situations was not significant.

The sentences that mothers used with their younger children were interesting in several ways. Sentence forms or sentence frames seemed to appear repeatedly in the speech of one mother within a short period of time and the same sentence frames appeared in the speech of several mothers. For example, within a five minute play session one mother produced five sentences that could be described by "Look at + Noun Phrase."

"Look at the truck."
"Look at the blue car."
"Look at the gramma."
"Look at here."
"Look at here."

Another mother produced three such sentences, another 2.

Mothers rarely used compound sentences with the younger child. About 10% of the mothers' utterances to the younger child were single word utterances;

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"Listen," "See," "Pretty."

About thirty percent of the mothers utterances were imperative sentences. The imperative is an interesting sentence form from the view point of the language learning child. In the imperative sentence form there is no expressed subject. The child is presented with what is essentially a verb phrase unmarked for tense. For example:

"Look at the purse."
"See the dolly's eyes."
"Watch the dolly's eyes."

About 30% of the sentences used by the mother in playing with the younger child were questions. Inverted Yes/No questions were very frequent. The same question form was often repeated several times within a 5 minute segment. For example:

"Is the car stuck?"
"Is the dolly ni ni?"
"Is the dolly warm?"

About 30% of the sentences used by the mothers were declarative sentences. Here again particular sentence forms of patterns were repeated. Four, five or even six sentences of the same form might occur in the speech of one mother. Some of the most common forms were "That's + Noun Phrase," "Here's + Noun Phrase" and "There's + Noun Phrase." One or more of these forms was common in the speech of almost all of the mothers.

In summary, within this study mothers modified their speech in ways that systematically related to the age of their speaking partner. With very young children mothers used a slower speech rate, a restricted vocabulary and a restricted set of sentences. Sentence boundaries were well marked by pauses and there was little "false" information in the form of broken sentences, disfluencies or inappropriate pauses. Single word utterances, imperative sentences and questions were prominent in the speech to the younger child.

As the age of the speaking partner increased, the rate of speech and the diversity of vocabulary increased. Sentence boundaries were less well marked and there was an increase in "false" information including disfluencies and inappropriate pauses.

While no claims can be made from this study regarding the function of the observed changes in mothers speech, it seems likely that the patterns of change observed in this study might aid in the language learning process.

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